

# Survey Quality Assessments at EIA

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Our new strategic plan places an emphasis on data quality, and includes a measure for frame coverage (discussed yesterday) and a measure on survey data quality, namely:

Percent of EIA surveys meeting quality targets.

The survey quality assessment is one tool for setting these survey-specific targets. This is spelled out in our internal action plan in item 1d:

This is a new measure that will be implemented using the EIA Survey Quality Assessment Instrument and Quality Measures Matrix. ... **SMG will help Offices select an appropriate set of output performance measures for each survey;** the baseline time period will be 2002. SMG will support Offices in the initial gathering and compilation of appropriate performance information for the baseline time period and in determining EIA-wide percentage values. ...

## Performance Measure Implementation Schedule: Percent of EIA surveys meeting quality targets

Activity	Due Date
SMG meets with survey groups to explain use of the instrument and works with Offices to explain the process and collect the information	7/1/04
Offices (with SMG help) collect performance data for each quality measure for each survey for the baseline time period. <b>Offices set out-year performance targets for selected quality measures.</b> SMG compiles results, forms EIA-wide percentages for the baseline time period and posts results on the EIA Intranet.	9/30/04
Offices complete annual Survey Quality Assessment Instrument and Quality Measures Matrix for 2003 data and provide to SMG.	11/15/04
SMG compiles results, forms percentages and posts results on the EIA Intranet.	12/1/04
Annual Survey Quality Assessment Questionnaire and Quality Measures Matrix to be completed for calendar year ending 11 months before, provided to SMG	Annually by 11/15
SMG compiles results and posts on EIA intranet	Annually by 12/01

This topic was outlined at our meetings with the ASA Committee on Energy Statistics in April 2003, and the summary notes included:

A new initiative will involve survey managers identifying specific indicators of the survey process, and is intended to improve survey process and results. This initiative will involve collaboration between Survey Managers, SMG (Statistics and Methods Group within EIA), and an EIA contractor.

The Committee agreed that a survey quality initiative would be useful to EIA program and survey managers, and recommended:

- Developing an assessment tool by and for survey managers to establish targets;
- Recognizing differences among surveys due to context, frequency, scope, budget, and purpose;
- Developing feedback mechanism for diagnosing and treating problems with survey systems;
- Adding incentives for major and minor improvements in survey systems;
- Providing survey documentation which is available and up-to-date; and
- Emphasizing the importance of conducting independent survey assessments.

## Progress

We formed a team with representatives from the survey offices, and received guidance from a consulting firm with experience in this area. We developed a short description of our goals (attached - pages 4 through 7) and a one-page form for collecting data (page 8.)

So far, we have only collected data for a few surveys.

- We did an extensive “evaluation” of one survey and collected more data than what is being sought for the assessment.
- Had a group interview with survey managers in one area.
- Have some notes from one interview conducted by a survey manager with staff.

Findings so far are

- Good participation so far.
- It was suggested that we expand to capture all processes. We will need to interview more than just the survey managers, but also support staff, such as data operations. Have not discussed interviewing contracting staff.
- It is difficult to summarize interviews and determine whether or not a major problem exists. Are we developing a concise summary for management, or are we updating our documentation?
- Not sure that we will really share the best practices. One person had suggested that the survey managers get together and complete the form in one meeting, or maybe a workday.
- Need a procedure to use findings or suggestions.

Questions for the committee

- Anything to add or subtract from our matrix form or description?
- How to make sure findings are used within the office and shared among offices?
- Any suggestions for implementing?

## **attachment 1: Description of Process and Objectives**

The EIA Strategic Plan identifies several levels of measures, which together, define the quality of EIA products and services. At the top level, measures address mission outcomes, and are directly measured by the users and customers of EIA information products. At the second level, measures address EIA outputs, which are measured by product attributes, such as relevance, reliability, and consistency with industry structures, timeliness, and quality. At the third level, measures address process quality, particularly accuracy of the basic data.

Assessing survey process quality requires a good survey quality assessment instrument, and a procedure for using the instrument. A good instrument will have the following elements:

1. It will *measure the right things*.
2. It will *ask the right questions*.
3. It will help guide survey personnel to determine if changes are needed and if so, where they are needed.

The right questions will lead to the right quality measures. The following is a proposal for questions and measures that may be appropriate for assessing the quality of an EIA survey process. For this procedure, one should consider what measures are currently available, how these were selected, and how they are being used. You might also consider what new measures you would find useful if resources were available to provide the measures.

### **Survey Quality Assessment Instrument**

Availability of performance measures. How easy is it to see and use performance measures for this survey?

- a. Please describe the status of performance measures for this survey - pick the statement(s) that best describes your situation.
  - i. Information to support computation of measures not captured by processing system.
  - ii. Information available, but preparation of reports requires manual effort.
  - iii. Information available, some automatic reporting of measures available.
  - iv. Information available, automatic report concerning all required performance measures is prepared regularly.
- b. What work is needed to make survey performance measures readily available for use? Do you have a planned date when the work will be done? Do you need additional resources for this work?

1. Frames and respondent lists. How current, representative and accurate is your frame? (coverage error).

To what extent does the frame cover the target population of the survey? What is missing from the frame and can you quantify the impact of the missing part? (For example, if you only survey companies above some size threshold.)

Quality measures

- a) Coverage rates (where measurable)
- b) Frame/respondent list volatility (births and deaths, changes of ownership, both as counts and weighted—because impact of such changes in big companies is potentially greater.) What is the impact of those changes on data quality. Can you quantify what is/would be lost with less frequent frame updates?
- c) Describe your steps taken to review and update frame/respondent lists.
- d) Do you have a coordinated frame list for all surveys in your division? Is it regularly updated with information from surveys based on that list?

2. For sample surveys only. Sampling Error. What is the magnitude of the sampling errors?

Quality measures

- a) What was the target CV or sampling error used in survey design?
- b) What is the achieved CV, sampling error, or relative standard error for key survey variables?
- c) How do you use the measures of CV, sampling error or relative standard error as part of your quality control activities?

3. Nonresponse error. What is our response rate and imputation rate?

Quality measures

- a) Survey response rate (counts)
- b) Survey response rate for key variables (volumetric)
- c) Percent imputed for key variables

4. Measurement error. Can respondents provide the data you ask for?
  - a) Has EIA conducted usability testing of the survey with respondents? Describe the procedure and give number of individuals tested and dates. Do you have measures on reporting error and its effect?
  - b) What approaches do you use to ensure data requested on the survey form can and is being provided correctly by the respondents?
  - c) Are there questions on the survey that respondents seem to have particular difficulties in filling out (resulting in many failed edits, or call backs?) What plans do you have to fix these problems?

- d) When did you last consult with respondents concerning their ability to provide the information requested?
5. Processing error. Is our editing procedure maintaining a good cost-benefit balance?

Quality measures –

- a) False positives (the number of time data fail edits, but turn out to be correct.)
  - b) Percentage of forms failing at least one edit.
  - c) Percentage of forms requiring a follow-up phone call or email in response to failed edits.
  - d) What is the net impact of editing on one or more data items? Can we estimate what the impact would be with more or less time spent editing?
6. Overall assessments of quality. Do the survey results agree with other surveys that try to measure the same or similar things?
- a) Describe comparisons to external data, and what was learned about data quality.
  - b) Describe any input you have received from customers (either from user surveys, or by direct message) concerning the quality (timeliness or accuracy) of the data.
7. Use of data collected from other sources, either compiled and provided by a third party such as States or purchased from private vendors. Answer these questions if you use data from external sources.
- a) Describe any quality control activities you use to make sure the data are of sufficiently high quality.
  - b) Describe any manipulations of the data used in the preparation of the official “EIA” estimate.
  - c) Are these descriptions available to users of the data?
8. Do we measure the trade-off between timely data and revisions?

Quality measures

- a) Difference between planned date of publication and actual date, for both first release of data and the final data.
  - b) Revision between first release of data and final data.
  - c) Please explain any large delays or revisions?
9. Do we have good measures for how our resources are used?

Quality measures

- a) If more resources were available, what area would you improve and what impact would this have?
- b) If no additional resources were available, what re-allocation of current resources within the survey area would have a positive impact on the data that you can quantify?
- c) Can you measure individual productivity on a weekly or daily basis?

10. Are data accessible to users of the data?

Quality measures –

- a) What information is available from this survey on EIA's website?
  - i. Purpose of survey
  - ii. Sources of information,
  - iii. How to interpret numerical values,
  - iv. Data quality measures? Yes or No

11. Are some of the data items collected considered confidential? If so describe the steps taken to protect the data.

- a) Describe steps taken to make sure unauthorized individuals do not have access to individually identifiable data.
- b) Describe steps taken to protect confidential data in tables or public use microdata products.

Based upon the information in the quality measures and the targets or desired results for the survey, do we need to make any process changes to improve the quality measures? If so what are the targets for improvement and how do we plan to make the needed improvements?

## Attachment 2: Quality Measures Matrix

Survey Measure	Availability of measure A=automated M=manual U=unavailable	Latest value	Target (if applicable)	Needs Improvement Y or N
Coverage rates				
Frame births and deaths				
Relative Standard Error				
Number of failed edits which turn out to be correct				
% of forms failing at least 1 edit				
Survey response rate (counts)				
Survey response rate (volumetric)				
Revision error for key variables				
Percent imputed for key variables				
Difference between release date of data and last day of the reference period				
Is there a planned publication date? Y or N Percent of times met planned date(s)?				
Comparisons to other data				
Is source of information and interpretation of numerical values available to users? Y or N				
Has EIA received complaints from customers about products related to this survey? Y or N				